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Test 1473: John Deere 2950 Diesel 16-Speed

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NEBRASKA TRACTOR TEST 1473 — JOHN DEERE 2950 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel Consumption | | | Temperature °F (°C) | | | Barometer inch Hg (kPa) | |
|---|--------------------------------|-------------------|-----------------------|-----------------------|---------------------|--------------------|--------------------|-------------------------------|--------------------|
| | | gal/hr (l/h) | lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Cooling medium | Air wet bulb | Air dry bulb | | |
| MAXIMUM POWER AND FUEL CONSUMPTION | | | | | | | | | |
| Rated Engine Speed—Two Hours (PTO Speed—1039 rpm) | | | | | | | | | |
| 85.37 (63.66) | 2500 | 5.398 (20.434) | 0.443 (0.270) | 15.82 (3.115) | 184 (84.2) | 52 (10.8) | 75 (23.9) | 28.843 (97.400) | |
| Standard Power Take-off Speed (1000 rpm)—One Hour | | | | | | | | | |
| 85.50 (63.76) | 2407 | 5.237 (19.824) | 0.429 (0.261) | 16.33 (3.216) | 183 (84.1) | 50 (10.2) | 74 (23.6) | 28.820 (97.321) | |
| VARYING POWER AND FUEL CONSUMPTION—Two Hours | | | | | | | | | |
| 74.37 (55.46) | 2563 | 4.937 (18.689) | 0.465 (0.283) | 15.06 (2.968) | 178 (81.4) | 52 (10.8) | 76 (24.2) | | |
| 0.00 (0.00) | 2650 | 1.938 (7.336) | | | 172 (78.1) | 52 (11.1) | 74 (23.6) | | |
| 37.83 (28.21) | 2607 | 3.359 (12.715) | 0.622 (0.379) | 11.26 (2.219) | 176 (80.0) | 51 (10.6) | 72 (22.2) | | |
| 86.14 (64.23) | 2500 | 5.382 (20.373) | 0.438 (0.267) | 16.01 (3.153) | 184 (84.2) | 51 (10.6) | 73 (22.8) | | |
| 19.06 (14.21) | 2626 | 2.648 (10.024) | 0.974 (0.593) | 7.20 (1.418) | 174 (78.6) | 51 (10.6) | 74 (23.1) | | |
| 56.22 (41.92) | 2584 | 4.137 (15.660) | 0.516 (0.314) | 13.59 (2.677) | 178 (80.8) | 52 (10.8) | 76 (24.2) | | |
| Av Av | 45.60 (34.00) | 2588 | 3.734 (14.135) | 0.574 (0.349) | 12.21 (2.405) | 177 (80.5) | 51 (10.7) | 74 (23.3) | 28.840 (97.388) |

DRAWBAR PERFORMANCE

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank- shaft speed rpm | Slip % | Fuel Consumption | | | Temp. °F (°C) | | | Barom. inch Hg (kPa) |
|--|--------------------------------|------------------------|---------------------------------|-----------|-------------------|-----------------------|-----------------------|---------------------|--------------------|--------------------|----------------------------|
| | | | | | gal/hr (l/h) | lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Cool- ing med | Air wet bulb | Air dry bulb | |
| Maximum Available Power—Two Hours 9th (5L) Gear | | | | | | | | | | | |
| 72.12 (53.78) | 5328 (23.70) | 5.08 (8.17) | 2501 | 6.57 | 5.312 (20.109) | 0.517 (0.314) | 13.58 (2.674) | 187 (86.1) | 60 (15.6) | 75 (23.6) | 28.535 (96.358) |
| 75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear | | | | | | | | | | | |
| 57.66 (43.00) | 4048 (18.01) | 5.34 (8.60) | 2582 | 4.76 | 4.631 (17.532) | 0.563 (0.343) | 12.45 (2.453) | 181 (82.9) | 48 (8.8) | 56 (13.4) | 28.850 (97.422) |
| 50% of Pull at Maximum Power—Two Hours 9th (5L) Gear | | | | | | | | | | | |
| 39.43 (29.40) | 2699 (12.01) | 5.48 (8.82) | 2606 | 3.33 | 3.744 (14.171) | 0.666 (0.405) | 10.53 (2.075) | 180 (82.2) | 49 (9.4) | 52 (10.8) | 28.815 (97.304) |
| 50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear | | | | | | | | | | | |
| 39.53 (29.48) | 2699 (12.01) | 5.49 (8.84) | 1485 | 3.21 | 2.727 (10.325) | 0.484 (0.294) | 14.49 (2.855) | 181 (82.5) | 53 (11.4) | 57 (13.9) | 28.815 (97.304) |
| MAXIMUM POWER IN SELECTED GEARS | | | | | | | | | | | |
| 63.90 (47.65) | 8768 (39.00) | 2.73 (4.40) | 2555 | 14.99 | 5th (3L) Gear | | | 180 (82.2) | 43 (6.1) | 44 (6.7) | 28.810 (97.287) |
| 69.64 (51.93) | 7228 (32.15) | 3.61 (5.81) | 2499 | 9.81 | 6th (3H) Gear | | | 184 (84.2) | 58 (14.4) | 67 (19.4) | 28.470 (96.139) |
| 71.27 (53.15) | 6920 (30.78) | 3.86 (6.22) | 2501 | 9.05 | 7th (4L) Gear | | | 184 (84.2) | 57 (13.9) | 65 (18.3) | 28.460 (96.105) |
| 72.01 (53.69) | 5344 (23.77) | 5.05 (8.13) | 2497 | 6.39 | 8th (4H) Gear | | | 184 (84.2) | 56 (13.3) | 63 (17.2) | 28.450 (96.071) |
| 73.06 (54.48) | 5397 (24.00) | 5.08 (8.17) | 2501 | 6.46 | 9th (5L) Gear | | | 187 (86.1) | 60 (15.6) | 74 (23.3) | 28.530 (96.342) |
| 73.30 (54.66) | 4181 (18.60) | 6.57 (10.58) | 2499 | 4.80 | 10th (5H) Gear | | | 185 (84.7) | 59 (15.0) | 69 (20.6) | 28.480 (96.173) |
| 73.11 (54.52) | 3818 (16.98) | 7.18 (11.56) | 2501 | 4.34 | 11th (6L) Gear | | | 186 (85.3) | 60 (15.6) | 70 (21.1) | 28.490 (96.206) |
| 71.84 (53.57) | 2911 (12.95) | 9.25 (14.89) | 2501 | 3.24 | 12th (6H) Gear | | | 186 (85.3) | 60 (15.6) | 71 (21.7) | 28.500 (96.240) |

Department of Agricultural Engineering

Dates of Test: April 18 to May 2, 1983

Manufacturer: JOHN DEERE WERKE MANN-HEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 47.0 (rating taken from oil company's inspection data) Specific gravity converted to 60°/60° (15°/15°) 0.8421 Fuel weight 7.012 lbs/gal (0.840 kg/l) Oil SAE 15W-40 API service classification CD, CC, SD To motor 2.581 gal (9.772 l) Drained from motor 2.091 gal (7.916 l) Transmission and final drive lubricant John Deere Hy-Gard transmission and hydraulic fluid Total time engine was operated 37.0 hours.

ENGINE: Make John Deere Diesel Type six cylinder vertical Serial No. 6359DL04554662CD Crankshaft lengthwise Rated rpm 2500 Bore and stroke 4.19" x 4.33" (106.5 mm x 110 mm) Compression ratio 16.8 to 1 Displacement 359 cu in (5883 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter one paper element and one mesh screen Muffler underhood Exhaust vertical Cooling medium temperature control two thermostats.

CHASSIS: Type standard Serial No. *L02950T466905* Tread width rear 61.8" (1570 mm) to 94.9" (2410 mm) front 58.3" (1482 mm) to 80.3" (2040 mm) Wheel base 100.4" (2551 mm) Center of gravity (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.5" (776 mm) Vertical distance above roadway 40" (1016 mm) Horizontal distance from center of rear wheel tread 0" (0 mm) to the right/left Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (2) range operator controlled powershift Advertised speeds mph (km/h) first 1.6 (2.5) second 2.0 (3.2) third 2.2 (3.5) fourth 2.8 (4.5) fifth 3.1 (5.0) sixth 4.0 (6.4) seventh 4.2 (6.8) eighth 5.4 (8.7) ninth 5.4 (8.7) tenth 6.9 (11.1) eleventh 7.5 (12.0) twelfth 9.5 (15.3) thirteenth 10.7 (17.3) fourteenth 13.7 (22.0) fifteenth 14.5 (23.3) sixteenth 18.4 (29.7) reverse 2.4 (3.9), 3.1 (5.0), 3.4 (5.4), 4.3 (6.9), 4.8 (7.7), 6.1 (9.9), 6.5 (10.4), 8.3 (13.3) Clutch single dry disc operated by foot pedal Brakes wet disc hydraulically actuated and operated by two foot pedals which can be locked together Steering hydrostatic Turning radius (on concrete surface with brake applied) right 144" (3.66 m) left 144" (3.66 m) (on concrete surface without brake) right 166" (4.22 m) left 166" (4.22 m) Turning space diameter (on concrete surface with brake applied) right 299" (7.59 m) left 299" (7.59 m) (on concrete surface without brake) right 343" (8.71 m) left 343" (8.71 m) Power take-off 540 rpm at 2415 engine rpm and 1000 rpm at 2407 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

| | | | | | | |
|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Crankshaft Speed rpm | 2501 | 2251 | 2000 | 1758 | 1502 | 1251 |
| Pull—lbs (kN) | 5397 (24.00) | 5833 (25.95) | 6214 (27.64) | 6465 (28.76) | 6431 (28.61) | 6399 (28.46) |
| Increase in Pull % | 0 | 8 | 15 | 20 | 19 | 19 |
| Power—Hp (kW) | 73.06 (54.48) | 70.76 (52.76) | 66.56 (49.63) | 60.58 (45.18) | 51.47 (38.38) | 42.67 (31.82) |
| Speed—Mph (km/h) | 5.08 (8.17) | 4.55 (7.32) | 4.02 (6.46) | 3.51 (5.66) | 3.00 (4.83) | 2.50 (4.02) |
| Slip % | 6.46 | 6.97 | 7.70 | 7.99 | 7.99 | 8.13 |

| TRACTOR SOUND LEVEL WITH CAB | dB(A) |
|---|-------|
| Maximum Available Power—Two Hours | 76.0 |
| 75% of Pull at Maximum Power—Ten Hours | 76.0 |
| 50% of Pull at Maximum Power—Two Hours | 75.5 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 70.5 |
| Bystander in 16th (8H) gear | 88.0 |

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|----------------------------------|-----------------------------|---------------------------|---------------------------|
| Rear Tires | —No., size, ply & psi (kPa) | Two 18.4-38; 8; 16 (110) | Two 18.4-38; 8; 16 (110) |
| | —Liquid (each) | 445 lb (202 kg) | None |
| | —Cast Iron (each) | None | None |
| Front Tires | —No., size, ply & psi (kPa) | Two 10.00-16; 6; 32 (220) | Two 10.00-16; 6; 32 (220) |
| | —Liquid (each) | None | None |
| | —Cast Iron (each) | 28 lb (12 kg) | None |
| Height of Drawbar | | 23.5 in (595 mm) | 23.5 in (595 mm) |
| Static Weight with Operator—Rear | —Rear | 7970 lb (3615 kg) | 7080 lb (3211 kg) |
| | —Front | 3075 lb (1395 kg) | 3020 lb (1370 kg) |
| | —Total | 11045 lb (5010 kg) | 10100 lb (4581 kg) |

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 118°F (47.8°C). Eight gears were chosen between 15% slip and 10 mph (16.1 km/h). During final inspection, the No. 5 piston was found to have an imprint of the exhaust valve. The imprint showed some pitting.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1473**.

LOUIS I. LEVITICUS

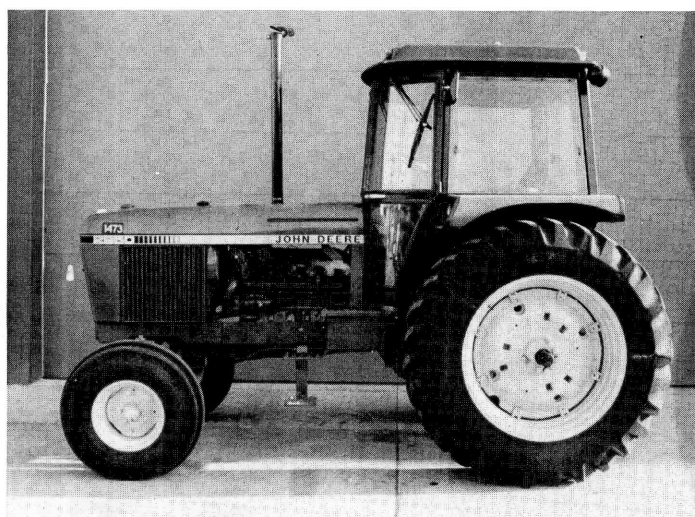
Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



John Deere 2950 Diesel

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